Hrvatski operator prijenosnog sustava d.o.o.
10000 Zagreb, Kupska 4

ELECTRICITY BALANCING RULES

Zagreb, November 2019

Pursuant to Article 18 of EU Commission Regulation 2017/2195 of 23 November 2017 establishing a Guideline on Electricity Balancing (Text with EEA relevance), EU Official Gazette L 312/6 of 28/11/2017 with the approval of the Croatian Energy Regulatory Agency, Class: 310-03/19-16/9, Reg. No.: 371-06-19-12 of 26 November 2019 the Management Board of the Croatian Transmission System Operator Ltd. hereby adopts the

ELECTRICITY BALANCING RULES

GENERAL PROVISIONS

Article 1

(1) These Electricity Balancing Rules (hereinafter: Rules) secure the implementation of the EU Commission Regulation 2017/2195 of 23 November 2017 establishing a Guideline on Electricity Balancing (Text with EEA relevance), EU Official Gazette L 312/6 of 28/11/2017 (hereinafter: EB GL Regulation)

(2) Hrvatski operator prijenosnog sustava d.o.o. (Croatian Transmission System Operator Ltd.) (hereinafter: Transmission system operator) hereby defines:

- terms and conditions for the provision of balancing service,
- terms and conditions for balance responsible parties,
- settlement rules in the event of suspension and reactivation of market activities.

(3) These Rules shall apply to all electricity market participants and all transmission and distribution system users.

Article 2

(1) Rules on electricity market design specify the following requirements from Article 18 of the EB GL Regulation:

- Defining rules allowing balance responsible parties to trade and thus acquire appropriate market position,
- Balance responsible parties are required to convey the connecting transmission system operator each change in their market position,
- Consequences of non-compliance with the terms and conditions applicable to balance responsible parties.

(2) Rules for suspension and reactivation of market activities shall be passed by the Transmission system operator and published on its internet pages.

DEFINITIONS

Article 3

(4) The terms used in these Rules shall have the meanings defined by the EU regulations and laws of the Republic of Croatia regulating energy industry, electricity market and regulation of energy activities, as well as regulations passed pursuant to EU regulations and national laws.

(5) In addition to the terms referred to in paragraph 1 above, the following terms used in these Rules shall have the meanings specified below:

1. *"aggregator" – legal person connecting different technical facilities in a group with the aim of providing a balancing service on power reserve and balancing energy market. Balancing services can concurrently be provided by technical units having different technologies. Facilities can be connected to transmission and/or distribution system. Aggregator shall be deemed independent if not connected with a supplier and/or a buyer from the system user in the system it aggregates.*
2. *"balancing energy price" – unit price for balancing energy expressed in HRK/MWh,*
3. *"reserve power price" – unit price for availability of reserve power expressed in HRK/MWh,*
4. *"bid divisibility" – Transmission System Operator's ability to use only a portion of the bids for balancing energy or power reserve, either in terms of activation or duration*
5. *"voluntary bid" – bid for balancing energy sent by any pre-qualified bidder of balancing energy*
6. *"balancing energy" – energy used by the Transmission System Operator to balance the system, secured by the balancing energy service provider*
7. *"energy used for balancing" – energy used by Transmission System Operators to balance the electricity system, includes balancing energy and all other forms of securing energy required for balancing the system*
8. *"reserve providing group" - group of generation modules, customer facilities and/or units for the provision of reserve connected to more than one connection point meeting the demand in terms of providing power reserve*
9. *"reserve providing unit" – one generation module and/or one customer facility or a group of generation modules and/or customer facilities connected to a joint connection point meeting the demand in terms of providing power reserve*
10. *Correction of balancing group market position" – calculation of energy quantities due to which balancing group's market position needs to be changed as a result of activation of balancing energy and/or energy required to meet the demand of other system services*
11. *"merit order list" – list of bids for reserve power and/or balancing energy in merit order, from the lower to the highest price, to be chosen from for reserve power and/or activation of balancing energy service,*
12. *"bidding method" – procedure used for choosing bids on reserve power and balancing market,*
13. *"settlement of balancing energy" – settlement between the Transmission System Operator and the balancing service provider for balancing energy activated from power reserves, settlement between the Transmission System Operator and market participant for balancing energy procured at the electricity market, settlement between two or more transmission system operators for cross-border procurement of balancing energy,*
14. *"settlement of imbalances" – financial mechanism of settlement whereby imbalance responsible party/balance group charges or pays for its imbalances,*
15. *"settlement interval" – time period for which the settlement is conducted,*
16. *"settlement period" – time period for which the imbalance needs to be settled,*
17. *"imbalance" – difference between realisation and market position of a balance group in one settlement interval,*

18. *"system imbalances" – imbalances in points of separation from the neighbouring transmission system operators calculated by the transmission system operator as a difference between planned and realised electricity flows on cross-border transmission lines,*
19. *"realisation" – difference between total delivery and takeover electricity quantity of a balance group in one settlement interval,*
20. *"submission of bids" – right and obligation of the balancing service provider is to submit reserve power and balancing energy bids which result from contractual relations regarding the provision of balancing service with the transmission system operator,*
21. *"bid" – offer for reserve power and/or balancing energy on reserve power and/or balancing energy market,*
22. *"bidder" – balancing service provider submitting a bid for reserve power and/or balancing energy,*
23. *"certificate of the bid selection" – certificate issued by the Transmission System Operator to the bidder for bids accepted and contracted in the procurement procedure via public tendering, for the provision of reserve power and/or balancing energy which is a legal basis for settlement and charging of balancing service,*
24. *"pre-qualification procedure" – procedure whereby the compliance of a reserve providing unit or a group with the demands of the transmission system operator are checked, namely, the pre-qualification procedure shall be developed and implemented by the transmission system operator for the purpose of checking criteria stipulated in articles 155, 159 and 162 of the Commission Regulation 2017/1485 dated 2 August 2017 on the establishment of the Guidelines for eletrcicity transmission system operation (Text with EEA relevance), EU Official Gazette L 220/1, 25/08/2017 (hereinafter: SOGL),*
25. *"relevant transmission system operator" – transmission system operator in charge of the cross-border exchange planning where all balancing service providers and imbalance responsible parties obey balancing terms and conditions,*
26. *"balancing product" - a group of stipulated characteristics of balancing energy takeover/delivery by the balancing service provider pursuant to articles 25 and 26 of the SOGL,*
27. *"balancing service provider" – participant in the reserve power and balancing energy market, or balancing energy market who has met the precondition defined through the pre-qualification procedure and has signed provision of balancing service agreement with the transmission system operator,*
28. *"Frequency control and power exchange area" – part of a synchronous area or a whole synchronous area physically separated from other control areas by metering points on interconnecting lines, managed by at least one transmission system operator (hereinafter: control area),*
29. *"power reserve" – capacity reserved for balancing the system, namely, power quantity the balancing service provider consented to reserve and submit balancing energy bids for to the transmission system operator for the duration of the contractual relationship,*
30. *"automated frequency restoration reserve" – active power reserve for restoration of system frequency to the nominal frequency and to the default power exchange,*
31. *"manual frequency restoration reserve" – active power reserve for restoration of system frequency to the nominal frequency and to the default power exchange,*

32. *„imbalance responsible party“ – electricity market participant responsible for imbalance of a balancing group which has signed a balance responsibility agreement with the transmission system operator,*
33. *“technical unit” – basic, technically indivisible generation, consumption or generation-consumption unit used by the balancing reserve power provider to guarantee the service of reserve power provision,*
34. *“market position” – difference between electricity sales (including exports) and purchase (including imports) of a balancing group in a settlement interval including correction of market position,*
35. *“system balancing” – all activities and all procedures on all time levels whereby transmission system operator continually secures electricity system frequency control within the predefined stability range,*
36. *“timeframe for the submission of bids” – time frame in which bidders can submit balancing energy bids.*

CONTRACTING AND SECURING BALANCING SERVICES

Article 4

(6) The following is referred to as balancing services herein:

- Securing automated frequency restoration reserve (hereinafter: aFRR) and balancing energy or balancing energy,
- Securing manual frequency restoration reserve (hereinafter: mFRR) and balancing energy or balancing energy.

(7) Balancing services referred to in paragraph 1 above shall be defined, procured and activated separately for positive and for negative direction of activation.

(8) Balancing services agreements shall be concluded with the transmission system operator by all appropriately qualified individual system users and aggregators.

(9) All individual system users and aggregators which have concluded a Balancing services agreement with the transmission system operator shall be defined as balancing service providers and shall submit bids for reserve power in the contracted period to the transmission system operator.

Article 5

(1) Technical qualifications of system users for the provision of individual balancing service shall be proved in the prequalification procedure.

(2) Prequalification procedure for balancing service providers is stipulated in the Verification procedure rules for the provision of aFRR and mFRR balancing services (hereinafter: Prequalification procedure rules).

(3) System user shall notify its supplier and/or purchasers, as well as relevant system operator before access to the independent aggregator's portfolio. All interrelations system user and supplier and/or purchaser shall solve bilaterally.

(4) Prequalification procedure rules referred to in subparagraph2 above shall contain at least the following:

- Communication requests for the provision of reserve power balancing service,
- Requests for recognition of technical capacity of the aFRR service provider,
- Requests for recognition of technical capacity of the mFRR service provider
- Testing control units' capacity for the provision of aFRR
- Testing control units' capacity for the provision of mFRR

(5) Prequalification procedure rules shall be published on the web pages of the transmission system operator.

(6) Prequalified service provider shall be able to sign the agreement on the provision of balancing service.

Article 6

(1) Balancing service agreement shall contain at least the following:

- Data on parties to the agreement,
- Characteristics of the service,
- Physical locations of control units of balancing service provider in the electricity system,
- Proof of technical capacity for the provision of balancing service,
- Transferral of the obligation of balancing service provision to other balancing service providers,
- Settlement and payment method,
- Conditions and amount of penalties for non-performance of the agreement,
- Conditions and amount of financial guarantee,
- Method of complaint resolution,
- Method of dispute resolution.

(2) Balancing service agreement forms shall be published by the transmission system operator on its web page.

Article 7

(1) Balancing services shall be procured in a transparent and non-discriminatory way by implementing the procurement procedure via public tendering conducted periodically (monthly, weekly, daily, and/or intra-daily) with at least the following pre-determined requirements:

- Identification, technical and financial parameters of a balancing product,
- Period for which the bidding is conducted – intradaily (continuous, one hour time block or time blocks in separate consecutive hours), daily, weekly, monthly,
- Method of bid submission,
- Time of bid submission,
- Bid specification – bid can be positive or negative, divisible or indivisible,
- Method of bid selection,
- Required power reserve quantity.

(2) Requirements referred to in paragraph 1 above shall be published on the web pages of the transmission system operator.

Article 8

(1) Bidders shall offer reserve power price in HRK/MW.

(2) Transmission system operator shall, pursuant to the method of bid selection, comparison of required and offered quantities and of offered reserve power prices, create a merit order list starting with the lowest bid.

(3) Following the completion of the bidding procedure, transmission system operator shall notify all bidders of the bidding results and shall send certificate of acceptance to bidders whose bids were accepted.

(4) Balancing service providers whose birds were accepted shall secure reserve power and submit balancing energy bids to the transmission system operator for the amount of reserve power from the relevant bidding procedure.

(5) When submitting balancing energy bids referred to in paragraph 4 above bidders shall offer balancing energy price in HRK/MWh.

Article 9

(1) Balancing service provider whose bid has been accepted shall have the right to transfer the obligation referred to in Article 8, paragraph 4 herein, to other prequalified balancing service provider.

(2) Transfer of obligation referred to in paragraph 1 above shall be allowed until one hour before the beginning of the delivery at the latest.

(3) Transfer of obligation referred to in paragraph 1 above shall be allowed if the following requirements have cumulatively been met:

- Balancing service provider to which the obligation is transferred shall have one Balancing service agreement signed with the transmission system operator,
- The transfer of the obligation referred to in paragraph 1 herein shall not breach operating limitations set out in chapters 1 and 2, part IV, Section VIII of the SOGL.

(4) In the event of non-fulfilment of the requirements referred to in paragraph 3 herein transmission system operator shall be able to reject the request for transfer of obligations.

(5) In the event of rejection of transfer request transmission system operator shall send an explanation for rejection to the relevant balancing service providers.

(6) Interrelations of balancing service providers and transmission system operators relating the transfer of obligation of balancing service provision is defined in detail in the Balancing Service Agreement.

Article 10

(1) Each balancing service shall submit to the transmission system operator information on the availability of reserve provision units per amount and direction, as well as unit price of activation, after the day-ahead electricity market closing time and after a change in availability.

(2) Each balancing service provider, although without obligation to secure reserve power and submit balancing energy bids to the transmission system operator as provided for in article 8, paragraph 4 herein, may submit to the transmission system operator bids for balancing energy pursuant to paragraph 1 above. Such bids for balancing energy shall be defied as voluntary bids.

(3) If the quantities of balancing energy are insufficient, for the purpose of meeting required electricity system safety criteria and safety of supply of end customers, transmission system operator shall reserve the right to activate unused units for the provision of reserve from the prequalified providers of balancing service referred to in paragraph 1 above.

IV. SYSTEM BALANCING

Article 11

1. Transmission system operator balances the system to secure operational safety.
2. In the event of lack or surplus of electricity in the system transmission system operator secures balancing energy in a settlement interval as follows:
   - Activation or purchase and sales of energy from the balancing service provider through contracted reserve power,
   - Activation of purchase and sales of energy from the balancing service provider based on voluntary bids for balancing energy,
   - Purchase and sales from other transmission system operators,
   - Purchase and sales of electricity on market principles from electricity market participants and on the electricity exchange.

Article 12

(1) Transmission system operator shall forward bids for balancing energy to joint European platforms for exchange of standard balancing products pursuant to Articles 19 to 22 of the EBGL.

(2) Transmission system operator shall activate bids for balancing energy pursuant to Article 29 of the EBGL based on joint optimisation function for activation.

(3) In the event of inaccessibility and/or unavailability of one or more joint European platforms for exchange of standard balancing products or available balancing energy in them, transmission system operator shall be able to activate balancing energy using all locally and/or cross-border available balancing mechanisms respecting the merit list of all currently available bids.

(4) In the event of inaccessibility and/or unavailability of one or more joint European platforms for exchange of standard balancing products or available balancing energy in them, balancing service provider with the dominant balancing market position in the Republic of Croatia shall submit bids for balancing energy with prices of up to the amount defined in the Rules for defining marginal balancing energy prices attached as Appendix 1 to these Rules.

Article 13

(1) Exceptionally, in the event of a insufficiency of balancing energy to meet the electricity system safety and end customer security of supply criteria, transmission system operator shall be able to procure electricity system balancing energy on the electricity market as well, according to the minimum cost criteria in a transparent and non-discriminatory way as follows:

- On the electricity exchange and/or
- Through direct electricity purchase and sales.

(2) All market participants who have signed an Agreement on purchase and sales of balancing energy shall have the right to participate in direct purchase and sales of electricity.

(3) Agreement on purchase and sales of balancing energy shall contain at least the following:

- Data on parties to the agreement,
- Subject matter of the agreement,
- Address and method of invoice submission,
- Pricing method,
- Settlement and payment method,
- Conditions and amount of penalties for non-performance of the agreement,
- Conditions and amount of financial guarantee,
- Method of complaint resolution,
- Method of dispute resolution,
- Data on duration and termination of the agreement, as well as its termination period.

(4) Generic form for the Agreement on purchase and sales of balancing energy shall be published on the web pages of the transmission system operator.

Article 14

(1) In collaboration with other transmission system operators, with the aim of minimising system balancing costs, transmission system operator shall establish joint balancing mechanisms.

(2) In collaboration with other transmission system operators, transmission system operator shall secure mechanism of voluntary mutual assistance during black start.

(3) Transmission System Operators shall contractually define mutual rights and obligations relating to mechanisms referred to in paragraphs 1 and 2 above.

Article 15

(1) The balancing energy settlement principles shall be as follows:

- Settlement shall be conducted separately for each individual settlement interval, separately for each direction pursuant to article 11 herein,
- In the event of activation order balancing energy shall be calculated for delivered energy exclusively,

- Settlement shall be based on determined quantities from balancing energy activation order and unit prices from bids sent by balancing energy providers.

(2) Method of balancing energy settlement shall be defined by:

- Agreement on the provision of balancing service,
- Agreement on purchase and sales of balancing energy,
- agreements with other transmission system operators.

Article 16

(1) Transmission System Operator shall measure and record balancing energy amounts referred to in Article 11 herein, as well as regulatory mistake in points of separation from the neighbouring transmission system operators.

(2) Based on metered quantities and unit prices of balancing energy in each settlement interval the Transmission System Operator shall calculate the following:

- Total system imbalance and engaged balancing energy per settlement interval,
- Financial obligation of the transmission system operator for accrued balancing energy per settlement interval.

Article 17

(1) In each settlement interval imbalances in the system shall be calculated according to the formula below:

$$E_{imbalance,i} = E_{Plnned,i} - E_{realised,i}$$

where the elements of the equation shall be as follows:

$E_{imbalance,i}$ – energy quantity which is the difference between planned and realised cross-zonal exchange of the Croatian regulatory area in a settlement interval "i" in MWh.

$E_{Planned,i}$ – total energy quantity of the planned cross-zonal exchange of the Croatian regulatory area in a settlement interval "i" which is negative during electricity imports in the system, in MWh,

$E_{realised,i}$ – total energy quantity of the realised cross-zonal exchange of the Croatian regulatory area in a settlement interval "i" which is negative during electricity imports in the system, in MWh.

(2) Total engage balancing energy in the Croatian control area in a settlement interval "i" ($E_{URukp,i}$) shall be calculated according to the formula below:

$$E_{URukp,i} = \left|E_{URukp+,i}\right| - \left|E_{URukp-,i}\right|$$

where the elements of the equation shall be as follows:

$E_{URukp+,i}$ – total quantity of positive balancing energy in a settlement interval "I" in MWh,

$E_{URukp-,i}$ – total quantity of negative balancing energy in a settlement interval "I" in MWh.

(3) Balancing energy ($E_{URukp,i}$) referred to in paragraph 2 above shall refer exclusively to energy intended for balancing of the Croatian control area, and it comprises:

- Balancing energy from activated aFRR (both positive and negative),
- Balancing energy from activated mFRR (both, positive and negative),
- Electricity purchased on the electricity market,
- System balancing energy secured through agreements with other transmission system operators.

(4) Imbalances in a control area shall be considered negative when:

$$E_{imbalance,i} + E_{URukp,i} > 0$$

(5) Imbalances in a control area shall be considered positive when:

$$E_{imbalance,i} + E_{URukp,i} < 0$$

V. RESPONSIBILITY FOR IMBALANCES

Article 18

(1) Balancing group manager shall be responsible for imbalance which is defined as a difference of the total realisation of all balancing group members and from the total market position of all balancing group members in a settlement interval.

(2) Balancing group manager and the Transmission System Operator shall conclude an Imbalances settlement agreement regulating responsibility of a balancing group manager for the imbalances of the balancing group.

(3) Mutual relations between a balancing group manager and members of a balancing group are defined by the Rules on electricity market design.

Article 19

(1) Obligations of a balancing group manager shall be the following:

- settle financial obligations resulting from the settlement of balancing group's imbalances pursuant to the Imbalances Settlement Agreement concluded with the Transmission System Operator,
- notify Transmission System Operator about the change of its name and headquarters and changes in the balancing group membership, within 8 days of the change at the latest.

Imbalance Responsibility Agreement

Article 20

(1) Imbalance Responsibility Agreement shall regulate the following:

- method of calculation and settlement of the total financial obligation of the balancing group manager resulting from imbalances,
- rules and obligations of the balancing group manager and of the transmission system operator.

(2) Imbalances settlement agreement shall contain at least the following:

- data on parties to the agreement,

- subject of the agreement,
- invoice delivery method,
- calculation and payment method,
- conditions and amount of financial guarantee of the balancing group's manager,
- confidentiality terms for sensitive data obtained directly or indirectly during the procedure of settlement of imbalances and their exclusive use for imbalances' settlement,
- method of complaints resolution,
- method of disputes resolution,
- data on duration and termination of the agreement and the termination period.

(3) Specimen of imbalance settlement agreement shall be published on the internet pages of the transmission system operator.

VI. SETTLEMENT OF IMBALANCES

Attribution of metering points to balance groups

Article 21

(1)Agreements regulating attribution of metering point to balancing groups shall be as follows:

- balancing group membership agreement,
- end customer supply agreement,
- electricity purchase agreement,
- provision of balancing energy agreement,
- system use agreement,
- agreement on the exchange of metering data between transmission and distribution system operators.

(2)Metering points between:

- the transmission and the distribution system of the Republic of Croatia,
- the transmission system of the Republic of Croatia and the neighbouring countries,
- the distribution system of the Republic of Croatia and the neighbouring countries,

shall be considered points of separation of the above mentioned systems.

(3)Electricity withdrawn and delivered in a metering point shall be calculated into imbalances of a balancing group to which the metering point belongs.

Metering Points Registry

Article 22

(1)Transmission System Operator shall be responsible for the Metering Points Registry in the transmission system.

(2) Distribution System Operator is responsible for the Metering Points Registry in the distribution system.

(3) All changes in the registries shall be entered by relevant transmission or distribution system operator in line with data on coming into force (beginning of validity period), changes or termination of the agreement referred to in Article 21 paragraph 1 herein, excluding the Balancing group membership agreement.

(4) The Registry shall contain at the least the following data:

- basic data on a metering point;
  i. metering point ID,
  ii. system user category,
  iii. system user ID,
- data on metering point attachment to a balancing group;
  i. member of a balancing group to which the metering point belongs,
  ii. legal base for the attachment,
  iii. date of agreement coming into force.

(5) Relevant system operator shall keep the registry in a manner which enables determination of the sequence of changes in the Metering Points Registry and revision of:

i. Entries into the registry (history of changes in the registry),

ii. Validity date of individual data from the registry (status history).

Change of metering point attachment to a balancing group

Article 23

Change of metering point attachment to a balancing group is related to a change of supplier and/or buyer of electricity, and is recorded by a change in the Metering Points Registry.

Balancing group's market position

Article 24

(1) Market position of a balancing group ($E_{market\ position\ BG}$) in MWh is the difference between contracted sales (including exports) and contracted purchase (including imports) of electricity on a wholesale market of all balancing group members in a settlement interval "i" together with pertinent effects of activation of balancing energy, and is calculated according to the formula below:

$$E_{market\ position\ BG,i} = E_{sales,ug,i} - E_{purchase,ug,i} + E_{sales,ur,i} - E_{purchse,ur,i} + E_{sales,correction,i} - E_{purchase,correction,i}$$

where the elements of the equation shall be follows:

$E_{sales,ug,i}$ – total electricity sales according to contracted schedules of all balancing group members in a settlement interval "i" in MWh,

$E_{puchase,ug,i}$ – total electricity purchase according to contracted schedules of all balancing group members in a settlement interval “i” in MWh,

$E_{sales,ur,i}$ – correction of the market position for sales resulting from activation of balancing energy and energy required to meet the needs of other system services provided by balancing energy provider and/or provider of other services of all balancing group members in a settlement interval “i” in MWh,

$E_{purchase,ur,i}$ – correction of the market position for purchase resulting from activation of balancing energy and energy required to meet the needs of other system services provided by balancing energy provider and/or provider of other services of all balancing group members in a settlement interval “i” in MWh,

$E_{sales,correction,i}$ – correction of the market position for sales resulting from activation of balancing energy and energy required to meet the needs of other system services when balancing energy provider and/or provider of other services is also an end user of a transmission or a distribution system (directly) or an independent aggregator in a settlement interval “i” in MWh,

$E_{purchase,correction,i}$ – correction of the market position for purchase resulting from activation of balancing energy and energy required to meet the needs of other system services when balancing energy provider and/or provider of other services is also an end user of a transmission or a distribution system (directly) or an independent aggregator in a settlement interval “i” in MWh,

(2) Electricity market operator defines the market position for each individual balancing group in each settlement interval based on the last approved contracted schedules of the balancing group members, and balancing energy, energy required to meet the needs of other system services, as well as based on the correction of market position when balancing energy is secured by system user directly or through an independent aggregator, submitted by the transmission system operator to the electricity market operator pursuant to the Rules of electricity market design.

(3) Market position of a balancing group is the basis for calculation of balancing groups' imbalances.

Article 25

(4) Calculation of realisation of balancing group's members is also conducted in the event of force majeure, operation disturbances and/or emergency operation of the transmission and/or distribution network pursuant to these Rules.

(5) Calculation of imbalances of a balancing group is also conducted in the event of force majeure, operation disturbances and/or emergency operation of the transmission and/or distribution network pursuant to these Rules.

Settlement of balancing group imbalances in the first (monthly) imbalance settlement

Article 26

1. Imbalances of individual balancing group in the first (monthly) imbalances settlement shall be calculated by electricity market operator.
2. Settlement interval in the first (monthly) imbalance settlement shall be 15 minutes, and the settlement period shall be one calendar month.
3. Imbalance calculation shall be made for the entire settlement period in the month following that settlement period.
4. Balancing group imbalances $(E_{imbalance\ BG,i})$ shall be calculated for each settlement interval "i" and shall be a difference between the balancing group's realisation $(E_{realisation\ BG,i})$ and balancing group's market position $(E_{market\ position\ BG,i})$ according to the formula below:

$$E_{imbalance\ BG,i} = E_{realisation\ BG,i} - E_{market\ position\ BG,i}$$

where the elements of the equation shall be as follows:

$E_{realisation\ BG,i}$ – sum of realisation of all balancing group members in a settlement interval "i" in MWh,

$E_{market\ position\ BG,i}$ – balancing group market position in a settlement interval "i" in MWh.

5. Realisation of a balancing group member $(E_{realisation\ of\ BG\ member,i})$ in MWh for a settlement interval "i" shall be calculated according to the formula below:

$$E_{reasliation\ of\ BG\ member,i} = E_{delivered\ by\ BG\ member,i} - E_{taken\ over\ from\ BG\ member,i}$$

where the elements of the equation shall be as follows:

$E_{delivered\ by\ BG\ members,i}$ – quantity of total electricity delivered into electricity system by a member of a balancing group in a settlement interval "i" in MWh,

$E_{taken\ over\ from\ BG\ member,i}$ – quality of total electricity taken over from electricity system by a member of a balancing group in a settlement interval "i" in MWh.

6. Electricity takeover and delivery data for a metering point equipped with interval meter shall be determined pursuant to the system operator's Grid Code.
7. For metering points not equipped with interval meters, electricity takeover and delivery realised in a settlement period shall be determined pursuant to the Grid Code of the system operator.
8. Total electricity delivered into the system of a balancing group member in a settlement interval "i" $(E_{delivered\ by\ BG\ members,i})$ in MWh shall be calculated as follows:

$$E_{delivered\ by\ BG\ member,i} = \sum_{n=1}^{M} E_{n,i}$$

where the elements of the equation shall be as follows:

$E_{n,i}$ – data on realised electricity delivery in a metering point „n" in MWh for a settlement interval "i",

M – the total number of metering points belonging to that balancing group member pursuant to paragraph 6 above.

9. Total electricity taken over from the electricity system by a balancing group member in a settlement interval "i" ($E_{taken\ over\ from\ BG\ member,i}$)shall be calculated as follows

$$E_{taken\ over\ from\ BG\ member,i} = \sum_{n=1}^{M} E_{n,i} + E_{nko,i}$$

where the elements of the equation shall be as follows:

$E_{n,i}$ – data on realised electricity takeover in a metering point „n" in MWh for a settlement interval "i",

M – the total number of metering points belonging to that balancing group member pursuant to paragraph 6 above,

$E_{nko,i}$ – data on realised electricity takeover by a balancing group member pursuant to paragraph 7 above for a settlement interval "i" in MWh.

Transmission System Operator and Distribution System Operator balancing group imbalances in the first (monthly) imbalance settlement

Article 27

(1) Transmission System Operator's balancing group imbalances shall be calculated by the Electricity Market Operator for each individual settlement interval and shall be a difference between actual transmission system losses and part of a Transmission System Operator's market position referring to the procurement of electricity for covering transmission system losses.

(2) Distribution System Operator's balancing group imbalances shall be calculated by the Electricity Market Operator for each individual settlement interval and shall be a difference between realisation and Distribution System Operator's market position.

Article 28

(1) For the purposes of the first (monthly) imbalance settlement distribution system losses for each settlement interval shall be calculated pursuant to the Rules for application of standard load profiles and shall be considered to be electricity taken over as per article 26, paragraph 9 herein.

(2) Realisation of the Transmission System Operator's balancing group in the first (monthly) imbalance settlement shall be calculated for each individual interval and shall be a difference between total electricity delivered into the transmission system and total electricity taken over from the transmission system, whereby electricity is delivered or taken over in points of separation from the distribution system, at points of separation from transmission systems of the neighbouring transmission system operators, and in metering points of transmission system users.

Calculation of the correction of balancing group market position

Article 29

(1) Settlement period and settlement interval for the calculation of the correction of balancing group market position are equal as in the calculation of imbalances.

(2) Quantities for the calculation of the correction of the market position for individual balancing group shall be determined by the transmission system operator in accordance with the delivered balancing energy and energy to meet the needs of other system services pursuant to article 24, paragraph 1 herein.

Settlement of balancing group imbalances in the second (annual) imbalance settlement

Article 30

(1) Settlement interval in the second (annual) imbalance settlement shall be a calendar month, and the settlement period shall be a calendar year.

(2) In the second (annual) imbalance settlement the difference between metered realisation pursuant to the General conditions for system use and electricity supply and realisation in the first (monthly) imbalance settlement pursuant to the Rules for application of standard load profiles shall be calculated.

(3) In the second (annual) imbalances settlement the realisation of distribution system losses is used.

(4) The calculation of imbalances for the entire settlement period of a calendar year shall be conducted in the year following the settlement period for which the settlement is made.

(5) Imbalances of individual balancing groups in the second (annual) calculation of imbalances shall be calculated by the Electricity Market Operator based on realisation data of balancing group members and data on actual losses in the distribution and the transmission system delivered by the Distribution and the Transmission System Operator.

(6) In the second (annual) imbalances settlement the realised monthly $(E^{II}_{realisation,j})$ electricity takeover and/or delivery in individual metering points ("i"), as well as monthly distribution system losses for each individual settlement interval of the second imbalances calculation (calendar month) of the settlement period (calendar year) shall be calculated by the Distribution System Operator pursuant to the Rules for application of standard load profiles.

(7) Balancing group imbalance in the second (annual) imbalance settlement is a sum of imbalances of all metering points belonging to the balancing group:

$$E^{II}_{imbalance\ BG} = \sum_{j=1}^{N} E^{II}_{imbalance,j}$$

where the elements of the equation shall be as follows:

$E^{II}_{imbalance,j}$ – determined monthly imbalance of a metering point „*i*“ within the second (annual) imbalance settlement

N – total number of metering points which belonged to the balancing group in the relevant month.

(8) Imbalance of a metering point in a calendar month equals to a difference between realisation in the second (annual) imbalances settlement and the first (monthly) imbalance settlement

$$E^{II}_{imbalance,j} = E^{II}_{realisation,j} - E^{I}_{realisation,j}$$

where the elements of the equation shall be as follows:

$E^{II}_{ostvarenje,j}$ – determined (calculated) monthly realisation of a metering point within the second (annual) imbalance settlement,

$E^{I}_{ostvarenje,j}$ – determined (calculated) data on monthly realisation in a metering point within the first (monthly) imbalance settlement.

(9) Distribution System Operator balancing group imbalances in a calendar month shall correspond to the difference between realisation in the second (annual) imbalance settlement and the first (monthly) imbalances settlement:

$$E^{II}_{realisation\ BG\ DSO} = E^{II}_{realisation\ BG\ DSO} - E^{I}_{realisation\ BG\ DSO}$$

where the elements of the equation shall be as follows:

$E^{II}_{realisation\ BG\ ODS}$ – determined (calculated) monthly realisation within the second (annual) imbalance settlement,

$E^{I}_{realisation\ BG\ ODS}$ – determined (calculated) data on monthly realisation within the first (monthly) imbalance settlement.

(10) In the event of changed data on realised electricity takeover and/or delivery in metering points on the interface of the transmission system operator in relation to the first imbalance settlement, imbalance of the transmission system operator's balancing group in one calendar months equals the different between realisation, calculated pursuant to Article 28 herein in the second (annual) imbalance settlement and the first (monthly) imbalance settlement:

$$E^{II}_{imbalance\ BG\ TSO} = E^{II}_{realisation\ BG\ TSO} - E^{I}_{realisation\ BG\ TSO}$$

where the elements of the equation shall be as follows:

$E^{II}_{realisation\ BG\ TSO}$ – determined (calculated) monthly realisation within the second (annual) imbalance settlement,

$E^{I}_{realisation\ BG\ TSO}$ – determined (calculated) monthly realisation within the first (monthly) imbalance settlement.

Data delivery in the first (monthly) and the second (annual) imbalances settlement

Article 31

(1) Pursuant to article 26, paragraph 5 herein, realisation of balancing group members in each settlement interval of a settlement period for metering points in the transmission system shall be calculated by the Transmission System Operator.

(2) Pursuant to article 26, paragraph 5 herein, realisation of balancing group members in each settlement interval of a settlement period for metering points in the distribution system shall be calculated by the Distribution System Operator.

(3) The sum of realisation of all balancing group members for metering points in the distribution system, including distribution system losses, shall be equal to realised exchange on the interface of the transmission system operator and distribution system operator in each settlement interval in a settlement period.

(4) Realisation of the Transmission System Operator's balancing group shall be calculated by the Transmission System Operator.

(5) Standard hourly values of power loss profiles in the distribution system in the first (monthly) imbalances settlement "i" shall be calculated by the Distribution System Operator.

(6) Losses in the distribution system for the purpose of the second (annual) imbalance settlement shall be calculated by the distribution system operator pursuant to the rules for application of the sampling load curve and shall be considered electricity that was taken over as per Article 26, paragraph 9 herein.

(7) The Distribution System Operator and the Transmission System Operator shall deliver data on realisation of balancing group members expressed in MWh/h and rounded to three decimal places to the Electricity Market Operator.

(8) Distribution System Operator and Transmission System Operator shall be responsible for the accuracy of data delivered for the purpose of imbalance settlement.

(9) Deadline for the delivery of data on realisation of members of balancing groups in the first (monthly) imbalances settlement is the sixteenth (16th) day of the month following the settlement period to which the data refers.

(10) Deadline for the delivery of data referred to in Article 32, paragraphs 1 and 2, dana from Article 17, paragraphs 4 and 5 and dana on total monthly balancing energy cost as per Article 17, paragraph 3 and dana whereby the market position is corrected as per Article 24, paragraph 1 is the sixteenth (16^{th}) day of the month following the settlement period to which the data refer.

(11) Deadline for the delivery of data for the purpose of the second (annual) imbalance settlement is the nineteenth (19^{th}) day of the month for previous months.

(12) Deadline for the delivery of data on the realisation of balancing group members in the second (annual) imbalance settlement is the nineteenth (19^{th}) January in the year following the settlement period (calendar year) to which the data refer.

(13) Delivery of data required for imbalances settlement shall be regulated by an agreement defining mutual relations between the Transmission System Operator and the Electricity

Market Operator, as well as Distribution System Operator and Electricity Market Operator pursuant to the Rules of electricity market design.

(14) Relations in the points of separation of the Distribution System Operator and the Transmission System Operator shall be regulated by an agreement on the exchange of metering data between the Transmission and Distribution System Operators pursuant to the General conditions for system use and electricity supply.

(15) Realisation of individual balancing groups shall be calculated in each settlement interval of a settlement period by the Electricity Market Operator.

(16) Electricity market operator shall send to the transmission system operator total realisation of balancing group members as a result of the realisation in the distribution system and in the transmission system.

VII. FINANCIAL SETTLEMENT OF IMBALANCES

The price of imbalances in the first imbalance settlement

Article 32

(11) Imbalance settlement shall be conducted by applying the imbalance price which is for the duration of the imbalance settlement equal for all balancing group managers, and is of equal amount for both, positive and negative imbalances.

(12) Weighted average price of activated positive balancing energy from frequency control reserves in a settlement interval "i" equals:

$$C_{EU+,i} = \frac{E_{aFRR+,i} \cdot C_{aFRR+,i} + E_{mFRR+,i} \cdot C_{mFRR+,i}}{E_{aFRR+,i} + E_{mFRR+,i}}$$

where the elements of the equation shall be as follows:

$E_{aFRR+,i}$ – total quantity of realised positive balancing energy activated from aFRR in a settlement interval "i" in MWh,

$E_{mFRR+,i}$ – total quantity of realised positive balancing energy active from mFRR in a settlement interval "i" in MWh,

$C_{aFRR+,i}$ – weighted average price of realised positive balancing energy activated from aFRR frequency control reserve in a settlement interval "i" in HRK/MWh:

$$C_{aFRR+,i} = \frac{\sum_{n=1}^{N} E_{aFRR+,n,i} \cdot C_{aFRR+,n,i}}{\sum_{n=1}^{N} E_{aFRR+,n,i}}$$

where the elements of the equation shall be as follows:

N – number of aFRR balancing service providers,

$E_{aFRR+,n,i}$ – total quantity of realised positive balancing energy activated from aFRR from the "n"th provider in a settlement interval "i" in MWh,

$C_{aFRR+,n,i}$ – weighted average price of realised positive balancing energy activated from aFRR from the "n"th provider in a settlement interval "i" in HRK/MWh:

$$C_{aFRR+,n,i} = \frac{\sum_{j=1}^{M} E_{aFRR+,n,i,j} \cdot C_{aFRR+,n,i,j}}{\sum_{j=1}^{M} E_{aFRR+,n,i,j}}$$

where the elements of the equation shall be as follows:

M – number of activated positive balancing energy bids activated from aFRR from the "n"th provider in a settlement interval "i"

$E_{aFRR+,n,i,j}$ – quantity of realised balancing energy activated from aFRR from the "j"th bid of the "n"th provider in a settlement interval "i" in MWh,

$C_{aFRR+,n,i,j}$ – price of "j"th bid of the "n"th provider in a settlement interval "i" in HRK/MWh.

$C_{mFRR+,t}$ – weighted average price of balancing energy activated from mFRR in a settlement interval "i" in HRK/MWh:

$$C_{mFRR+,i} = \frac{\sum_{n=1}^{N} E_{mFRR+,n,i} \cdot C_{mFRR+,n,i}}{\sum_{i=1}^{N} E_{mFRR+,n,i}}$$

where the elements of the equation shall be as follows:

N – number of mFRR balancing service providers,

$E_{mFRR+,n,i}$ – total quantity of realised positive balancing energy activated from mFRR from the "n"th provider in a settlement interval "i" in MWh,

$C_{mFRR+,n,i}$ – weighted average price of realised positive balancing energy activated from mFRR power reserve from the "n"th provider in a settlement interval "i" in HRK/MWh:

$$C_{mFRR+,n,i} = \frac{\sum_{j=1}^{M} E_{mFRR+,n,i,j} \cdot C_{mFRR+,n,i,j}}{\sum_{j=1}^{M} E_{mFRR+,n,i,j}}$$

where the elements of the equation shall be as follows:

M – number of activated positive balancing energy bids activated from mFRR from the "n"th provider in a settlement interval "i"

$E_{mFRR+,n,i,j}$ - quantity of realised balancing energy activated from mFRR from the "j"th bid of the "n"th provider in a settlement interval "i" in MWh,

$C_{mFRR+,n,i,j}$ - price of "j"th bid of the "n"th provider in a settlement interval "i" in HRK/MWh.

(13)Weighted average price of activated negative balancing energy from frequency control reserves in a settlement interval shall equal:

$$C_{EU-,i} = \frac{E_{aFRR-,i} \cdot C_{aFRR-,i} + E_{mFRR-,i} \cdot C_{mFRR-,i}}{E_{aFRR-,i} + E_{mFRR-,i}}$$

where the elements of the equation shall be as follows:

$E_{aFRR-,i}$ – total quantity of realised negative balancing energy activated from aFRR in a settlement interval "i" in MWh,

$E_{mFRR-,i}$ – total quantity of realised negative balancing energy activated from mFRR in a settlement interval "i" in MWh,

$C_{aFRR-,i}$ – weighted average price of realised negative balancing energy activated from aFRR frequency control reserve in a settlement interval "i" in HRK/MWh:

$$C_{aFRR-,i} = \frac{\sum_{n=1}^{N} E_{aFRR-,n,i} \cdot C_{aFRR-,n,i}}{\sum_{n=1}^{N} E_{aFRR-,n,i}}$$

where the elements of the equation shall be as follows:

N – number of aFRR balancing service providers,

$E_{aFRR-,n,i}$ – total quantity of realised negative balancing energy activated from aFRR from the "n"th provider in a settlement interval "i" in MWh,

$C_{aFRR-,n,i}$ – weighted average price of realised negative balancing energy activated from aFRR frequency control reserve of the "n"th provider in a settlement interval "i" in HRK/MWh

$$C_{aFRR-,n,i} = \frac{\sum_{j=1}^{M} E_{aFRR-,n,i,j} \cdot C_{aFRR-,n,i,j}}{\sum_{j=1}^{M} E_{aFRR-,n,i,j}}$$

where the elements of the equation shall be as follows:

M – number of activated negative balancing energy bids activated from aFRR from the "n"th provider in a settlement interval "i",

$E_{aFRR-,n,i,j}$ – quantity of realised negative balancing energy activated from aFRR from the "j"th bid of the "n"th provider in a settlement interval "i" in MWh,

$C_{aFRR-,n,i,j}$ – price of "j"th bid of the "n"th provider in a settlement interval "i" in HRK/MWh.

$C_{mFRR-,i}$ – weighted average price of realised negative balancing energy activated from mFRR in a settlement interval "i" in HRK/MWh:

$$C_{mFRR-,i} = \frac{\sum_{n=1}^{N} E_{mFRR-,n,i} \cdot C_{mFRR-,n,i}}{\sum_{n=1}^{N} E_{mFRR-,n,i}}$$

where the elements of the equation shall be as follows:

N – number of mFRR balancing service providers.

$E_{mFRR-,n,i}$ – total quantity of realised negative balancing energy activated from mFRR from the "n"th provider in a settlement interval "i" in MWh,

$C_{mFRR-,n,i}$ – weighted average price of realised negative balancing energy activated from mFRR frequency control reserve of the "n"th provider in a settlement interval "i" in HRK/MWh:

$$C_{mFRR-,n,i} = \frac{\sum_{j=1}^{M} E_{mFRR-,n,i,j} \cdot C_{mFRR-,n,i,j}}{\sum_{j=1}^{M} E_{mFRR-,n,i,j}}$$

where the elements of the equation shall be as follows:

M – number of activated negative balancing energy bids activated from mFRR from the "n"th provider in a settlement interval "i",

$E_{mFRR-,n,i,j}$ – quantity of realised negative balancing energy activated from mFRR from the "j"th bid of the "n"th provider in a settlement interval "i" in MWh,

$C_{mFRR-,n,i,j}$ – price of "j"th bid of the "n"th provider in a settlement interval "i" in HRK/MWh.

(14) In a settlement interval "i", when neither positive nor negative balancing energy is activated values of non-performed balancing energy activation fro frequency control reserves shall be:

$$C_{EU0,i} = C_{CROPEX_{DA},i}$$

where the element of the equation shall be as follows:

$C_{CROPEX_{DA},i}$ – electricity price on the day-ahead market at the Croatian electricity exchange Ltd. (http://www.cropex.hr) in a settlement interval "i" in HRK/MWh.

(15) When control area in a settlement interval has negative imbalances single price for imbalance shall be:

$$C_{1,i} = \begin{cases} (1+p) \cdot max\{C_{EU+,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| > 0 \\ (1-p) \cdot min\{C_{EU-,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| = 0\ i\ |E_{FRR-,i}| > 0 \\ (1+p) \cdot max\{C_{EU0,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| = |E_{FRR-,i}| = 0 \end{cases}$$

where the elements of the equation shall be as follows:

p – coefficient of financial neutrality $\in$ [0,1],

$C_{CROPEX_{DA},i}$ – electricity price on day-ahead market at the Croatian electricity exchange Ltd. (http://www.cropex.hr) in a settlement interval "*I*" in HRK/MWh,

$E_{FRR+,i}$ – total quantity of realised positive balancing energy activated from both, aFRR and mFRR in a settlement interval "i" in MWh,

$E_{FRR-,i}$ – total quantity of realised negative balancing energy activated from both, aFRR and mFRR in a settlement interval "i" in MWh.

(16) When control area in a settlement interval has positive imbalances single price for imbalance shall be:

$$C_{1,i} = \begin{cases} (1-p) \cdot min\{C_{EU-,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR-,i}| > 0 \\ (1+p) \cdot max\{C_{EU+,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR-,i}| = 0\ i\ |E_{FRR+,i}| > 0 \\ (1-p) \cdot min\{C_{EU0,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| = |E_{FRR-,i}| = 0 \end{cases}$$

(17) When a control area in a settlement interval "i" did not have imbalances single price for imbalance shall be:

$$C_{1,i} = \begin{cases} (1+p) \cdot max\{C_{EU+,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| > 0\ i\ |E_{FRR-,i}| = 0 \\ (1-p) \cdot min\{C_{EU-,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| = 0\ i\ |E_{FRR-,i}| > 0 \\ (1+p) \cdot max\{C_{EU+,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| > 0\ i\ |E_{FRR-,i}| > 0 \\ max\{C_{EU0,i}; C_{CROPEX_{DA},i}\} & za\ |E_{FRR+,i}| = |E_{FRR-,i}| = 0 \end{cases}$$

(18) In the event of temporary unavailability of $C_{CROPEX_{DA,}i}$ price referred to in paragraphs 4,5, and 6 above and price referred to in paragraph 7 above, instead of $C_{CROPEX_{DA}}i$ average price realised in regional energy exchanges, the Slovene electricity exchange BSP, (http://www.bsp-southpool.com) and Hungarian electricity exchange HUPX (http://www.hupx.hu) shall be used, expressed in HRK/MWh.

(19) In the event of temporary unavailability of $C_{CROPEX_{DA,}i}$ price referred to in paragraphs 4,5, and 6 above and price referred to in paragraph 7 above, instead of $C_{CROPEX_{DA}}i$ average price of day-ahead electricity price at the Croatian electricity exchange Ltd. (http://www.cropex.hr) in the nearest characteristic settlement interval (work day, Saturday, Sunday) shall be used.

(20) The value of financial neutrality coefficient "p" is calculated in order to make up for the actual system balancing energy cost on the level of settlement period. The financial neutrality coefficient shall be determined in an iterative procedure with step .01 within the margin of minimum 0 to maximum 1. Iterative procedure shall be halted when the sum total of financial obligations of all balancing group managers with financial neutrality coefficient in the current iteration, on the settlement period level, pursuant to Article 35, paragraph 2 herein in HRK, shall be lower or equal to the financial obligation of the transmission system operator on the settlement period level for engaged balancing energy pursuant to Article 17, paragraph 3 herein in HRK. The last financial neutrality coefficient calculated shall be used in imbalance settlement.

(21) By way of derogation from paragraph 10 above, should a negative price of the positive and/or negative balancing energy occur in a settlement interval *„i"* ($C_{EU+,i}$ i/ili $C_{EU-,i}$), in that particular settlement interval the value of financial neutrality coefficient shall be zero.

(22) For the purpose of calculation of weighted average prices referred to in paragraphs 2 and 3 above, in each settlement interval "i" all activated balancing energy bids shall be used to meet the balancing needs of the Croatian control area.

The price of imbalances in the second imbalance settlement

Article 33

(1) Unit price in the second imbalance settlement in a settlement interval is equal for both, positive and negative imbalances, and shall be calculated as follows:

$$C_{2,j} = \frac{\sum_{i=1}^{n_j} E_{ODS,i} \cdot C_{CROPEX_{DA},i}}{\sum_{i=1}^{n_j} E_{ODS,i}}$$

where the elements of the equation shall be as follows:

$E_{ODS,i}$ – values of the distribution system load curve rules of application of the sampling load curve in a settlement interval "i" in MWh which the distribution system operator sends to the market operator by the nineteenth (19th) of the month following the settlement period to which the values of the distribution system load curve refer,

$C_{CROPEX_{DA}}i$ – shall be determined pursuant to Article 32 herein,

n_j – number of settlement intervals in a settlement period "j" (calendar month) in which the available price is $C_{CROPEX_{DA}}i$.

(2) Electricity market operator shall by the twenty-first (21st) of the current month publish unit price in the second imbalance settlement on its internet pages for the preceding month.

Article 34

(1) In the event the prices in these Rules are not expressed in HRK they shall be converted to HRK according to the median currency rate of the Croatian National Bank valid on the last day of the settlement period and rounded to two decimal places.

(2) All prices and amounts defined herein shall be rounded to two decimal points.

Delivery of the first (monthly) and the second (annual) imbalances settlement

Article 35

(1) In the first (monthly) imbalance settlement Electricity Market Operator shall by the eighteenth (18th) of the month following the settlement period deliver

- to the Transmission System Operator and the Croatian energy regulatory agency (hereinafter: the Agency) imbalance settlement of each balancing group for the relevant settlement period,
- to the balancing group manager imbalance settlement for his balancing group as well as imbalance per balancing group member for each settlement interval.

(2) The imbalances settlement in the first (monthly) imbalances settlement shall include the following:

- the amount positive or negative imbalance of a balancing group for each settlement interval calculated pursuant to article 26, paragraph 4 herein,
- unit price for balancing energy settlement for positive or negative imbalances for each settlement interval,
- financial obligation of the balancing group manager for each settlement interval which shall be calculated as a product of the imbalance amount and relevant imbalance price,
- total financial obligation of the balancing group manager for settlement period which equals the sum of financial obligations in all settlement intervals.

(3) In the second (annual) provisional imbalance settlement, Electricity Market Operator shall by the twenty-first (21st) of the current month deliver to the balancing group manager provisional imbalance amount of his balancing group per balancing group member for each settlement interval.

(4) Electricity Market Operator shall by the twenty-first (21st) January in the year following the settlement period (calendar year) to which the settlement refers, deliver to the balancing group manager provisional imbalance amount of his balancing group per balancing group member for the previous settlement interval (calendar year).

(5) Electricity Market Operator shall by the eighteenth (18th) of February in a year following the settlement period (calendar year) to which the settlement refers, deliver to all balancing group managers and to the transmission system operator the second (annual) and final imbalance settlement.

(6) The imbalances settlement in the second (annual) imbalance settlement referred to in paragraphs 4 and 5 above shall include the following:

- the amount of balancing group imbalance for each settlement interval,
- unit price for balancing energy settlement for both, positive and negative imbalance for each settlement interval,
- financial obligation of the balancing group manager for each settlement interval which shall be calculated as a product of the imbalance amount and relevant imbalance price,
- total financial obligation of the balancing group manager for a settlement period which equals the sum of financial obligations in all settlement intervals.

(7) Transmission system operator, distribution system operator and market operator shall send to the Agency the data set out herein by the deadline, and in the format and form harmonised with that of the Agency.

Invoicing

Article 36

1. If the total financial obligation for balancing group imbalances within a settlement period is negative, Transmission System Operator shall issue an invoice to the balancing group manager.
2. If the total financial obligation for balancing group imbalances within a settlement period is positive, the balancing group manager shall issue an invoice to Transmission System Operator.
3. Invoices referred to in paragraphs 1 and 2 above shall within the first (monthly) imbalances settlement be issued by the twentieth (20th) of the month following the settlement period (month) for which the settlement is made.
4. Invoices referred to in paragraphs 1 and 2 above shall within the second (annual) imbalances settlement be issued immediately upon the delivery of the final imbalances settlement by the Electricity Market Operator.
5. Imbalances settlement of a balancing group shall be a component part of each invoice.
6. The invoice matures fifteen (15) days within invoice issuing.

VIII. RESOLUTION OF COMPLAINTS

Article 37

(1) Issued invoice referred to in article 36 herein can be disputed by the balancing group manager by filing a complaint to the Transmission System Operator within ten (10) days from the date of invoice issuing, only in the event that the Transmission System Operator has, when issuing the invoice based on imbalances data provided by the Electricity Market Operator, miscalculated the financial obligation of the balancing group manager. Complaints filed for any other reason shall be forwarded to the Electricity Market Operator for competent handling.

(2) Market position of a balancing group referred to in article 24 herein, imbalances settlement referred to in article 35, paragraphs 1, 3 and 4 herein, can be disputed by the balancing group manager by filing a complaint to the Electricity Market Operator within ten (10) days from the delivery date of the first (monthly) imbalances settlement and the second (annual) estimated imbalances settlement.

(3) The complaint shall be intelligible and shall contain everything necessary to ensure its implementation. It should especially contain the title of the body which it is submitted to,

first and last name of the person filing the complaint, seal and signature of the responsible person, and legal basis for filing the complaint.

(4) Claimant referred to in paragraph 2 herein shall state reasons for contestation in the complaint and attach documents proving groundedness of the complaint. Should the complaint lack elements required for its handling, or should it be unintelligible or incomplete, an official shall invite the claimant in a statement to complete the complaint within three (3) days, also notifying the claimant of legal consequences. If the claimant should not proceed pursuant to the statement, the Transmission System Operator shall issue a decision discarding the complaint. Should the complaint be inadmissible or untimely or made by unauthorised person, transmission system operator shall issue a decision discarding the complaint.

(5) In the event of a complaint filed as per paragraph 2 herein, within five (5) working days from the delivery of the written complaint to the Electricity Market Operator:

- the Transmission System Operator shall give its response regarding the accuracy of the realisation pursuant to article 31, paragraphs 1 and 4 herein, and regarding the accuracy of purchase and sales data of balancing energy activated from aFRR and mFRR, as well as energy to meet the needs of other services pursuant to Article 24, paragraphs 1 and 3 herein,
- Distribution System Operator shall give its response regarding the accuracy of realisation referred to in article 31, paragraph 2 herein and of standard settlement data referred to in article 31, paragraphs 5 and 6 herein.

(6) Complaints validly filed pursuant to paragraph 1 of this article and referring to the first (monthly) imbalance settlement shall postpone the maturity and settlement of financial obligation of the balancing group's manager as per invoices issued.

(7) Complaints referred to in paragraph 2 of this article referring to the first (monthly) imbalances settlement shall not postpone the maturity and settlement of financial obligation of the balancing group's manager as per invoices issued.

(8) Electricity Market Operator shall within fifteen (15) days from the date of reception of the complaint referred to in paragraph 2 of this article make a decision of its acceptance or rejection.

(9) Should the complaint referred to in paragraph 2 of this article be accepted, Electricity Market Operator shall correct the imbalances settlement which shall then become final and shall form a basis for issuing a new invoice and for adjustment of financial relations between the Transmission System Operator and the balancing group's manager.

*(10)*A complaint cannot be filed against the final settlement in the second (annual) imbalances settlement referred to in article 35, paragraphs 5 herein. Exceptionally should a difference between settlements and accepted complaints to the first and/or second provisional settlement unequivocally be determined complaints shall be allowed.

(11)Balancing group's manager shall be authorised to file a complaint to the Agency against the application of these Rules pursuant to the Electricity Market Act.

(12)Filing a complaint to the Agency against the application of these Rules shall not postpone the maturity and settlement of obligations of the balancing group's manager regarding the payment of invoices.

IX. AVAILABILITY OF DATA

Article 38

For Croatian control area transmission system operator shall publish data on electricity system balancing on the joint ENTSO-E Transparency Platform which results from the Commission Regulation (EU) 543/2013 dated 14 June 2013 on submission and publication of data in electricity markets and amending Annex 1 to the Regulation (EC) No 714/2009 of the European Parliament and of the Council, SOGL and EBGL.

X. AMENDMENTS

Article 39

2. Transmission system operator shall monitor the application of these Rules and prepare amendment to these Rules.
3. Should the amendments to these Rules become necessary transmission system operator shall, on its own initiative or on the suggestion of the Agency, initiate the amendment procedure.

Article 40

Explanations and interpretation of the Rules shall be given by the transmission system operator.

XI. TRANSITIONAL AND FINAL PROVISIONS

Article 41

Settlement interval for calculation of imbalances pursuant to Article 26, paragraph 2 herein and Articles 2 and 3 of Appendix 1 to these Rules is one hour up until the fulfilment of the requirements stipulated by Article 53 of the EBGL.

Article 42

In a crisis situation or circumstances provided for by Energy Act or the Commission Regulation 2017/2096 dated 24 November 2017 on establishing a network code on electricity emergency and restoration, transmission system operator, with the approval of the relevant Ministry, may partially or completely temporarily suspend these Rules.

Article 43

1. Transmission system operator and balancing group managers shall harmonise current contractual relations with these Rules.
2. Transmission system operator shall publish agreement forms referred to in Article 6, paragraph 2, Article 13, paragraph 4, and Article 20, paragraph 3 herein.

Article 44

Procedures initiated before the coming of these Rules into force shall be completed pursuant to the Rules on the balancing of the electricity system (HOPS 5/2016, 3/2017), methodology for determining prices for balancing energy settlement (*Official Gazette* no. 71/2016 and 112/2016) and Methodology for determining the prices for the provision of balancing service (*Official Gazette* no. 85/2015).

Article 45

(1) These Rules shall come into force eight (8) days following their publication on the internet pages of the Transmission System Operator (www.hops.hr).

(2) With the coming into force of these Rules, Rules on the balancing of the electricity system, Methodology for determining prices for balancing energy settlement, and the Methodology for determining the prices for the provision of balancing service shall cease to be valid, excepting the provisions pursuant to which the receivable for the first monthly imbalance settlement for the month of December 2019, and the second (annual) imbalance settlement for the 2019 calendar year, namely the period from 1/1/2019 to 31/12/2019, shall be calculated.

In Zagreb, 29 November 2019

President of the Management Board

Tomislav Plavšić, Ph.D.

Appendix 1

Rules for defining marginal balancing energy prices

Article 1

Calculation of balancing energy unit marginal price in a settlement interval for increase and decrease of generation within the scope of activation of reserve power for automated frequency control (hereinafter: aFRR) and for manual frequency control (hereinafter: mFRR) shall be based on the calculation of reference price for balancing energy in a settlement interval "i".

Article 2

(1) Reference price ($C_{ur,i}$) for balancing energy for each settlement interval "i" shall be expressed in HRK/MWh, and shall be calculated according to the following formula:

$$C_{ur,i} = CROPEX_{DA}, i$$

where the elements of the equation shall be as follows:

$CROPEX_{DA}, i$ – electricity price for the relevant settlement interval "i" on the day-ahead market at the Croatian electricity exchange CROPEX (http://www.cropex.hr) in HRK/MWh,

i – settlement interval.

(2) In the event of temporary unavailability of prices from the electricity exchange referred to in paragraph 1 above, reference price of balancing energy in a settlement interval "i" shall equal:

$$C_{ur,i} = \frac{SIPX_i + HUPX_i}{2}$$

where the elements of the equation shall be as follows:

$SIPX_i$ – electricity price for the relevant settlement interval "i" at the regional energy exchange BSP (http://www.bsp-southpool.com) expressed in HRK/MWh,

$HUPX_i$ – electricity price for the relevant settlement interval "i" at the Hungarian energy exchange HUPX (http://www.hupx.hu) expressed in HRK/MWh.

(3) In the event of temporary concurrent unavailability of prices from both exchanges referred to in paragraph 2 above, reference price of balancing energy in a settlement interval "i" shall equal the value of the balancing energy reference price in a settlement interval which preceded the relevant settlement interval by 7 days.

(4)Balancing energy reference prices referred to herein shall be calculated according to the median currency rate of the Croatian National Bank valid on the last day of the settlement period.

(5) Prices from the exchanges referred to in paragraphs 2 and 3 above and reference prices referred to in paragraphs 1 and 4 above shall be rounded to two decimal places.

Article 3

(1) Values of unit marginal prices for each settlement interval "i" shall be expressed in HRK/MWh, rounded to two decimal places and calculated according to the following formulae:

Service		Unit marginal price
Balancing energy from aFRR power reserve	positive balancing energy	$C_{aFRR+,i} = C_{ur,i} + k_{aFRR+} \cdot \lvert C_{ur,i} \rvert$
	negative balancing energy	$C_{aFRR-,i} = C_{ur,i} - k_{aFRR-} \cdot \lvert C_{ur,i} \rvert$
Balancing energy from mFRR power reserve for balancing	positive balancing energy	$C_{mFRR+,i} = C_{ur,i} + k_{mFRR+} \cdot \lvert C_{ur,i} \rvert$
	negative balancing energy	$C_{mFRR-,i} = C_{ur,i} - k_{mFRR-} \cdot \lvert C_{ur,i} \rvert$
Balancing energy from mFRR power reserve for system safety	positive balancing energy	$C_{mFRR,SS,i} = C_{ur,i} + k_{mFRR,SS} \cdot \lvert C_{ur,i} \rvert$

where the elements of the equation shall be as follows:

k_{aFRR+} – price coefficient for positive balancing energy from aFRR power reserve,

k_{aFRR-} – price coefficient for negative balancing energy from aFRR power reserve,

k_{mFRR+} – price coefficient for positive balancing energy from mFRR power reserve for balancing,

k_{mFRR-} – price coefficient for negative balancing energy from mFRR power reserve for balancing,

$k_{mFRR,SS}$ – price coefficient for positive balancing energy from mFRR power reserve for system safety.

(2) Coefficient values referred to in paragraph 1 above for each settlement interval are given in the Table below:

k_{aFRR+}	0,4
k_{aFRR-}	0,4
k_{mFRR+}	0,3
k_{mFRR-}	0,3
$k_{mFRR,SS}$	0,4